LEARNING MACHINE

Educational Records and the Blockchain

Education offers critical pathways for upward mobility and economic improvement for people everywhere. Credentials that are earned on that journey serve as important markers of skill, competency, and accomplishment. One goal of every education provider should be issuing these credentials in a secure way that students can take with them and build upon. With the blockchain, the goal of student data ownership becomes a reality. This technology enables learners receive their official records in a digital format that is tamper proof and immediately verifiable by others.

> ***"I've earned my credits — shouldn't I own them? I hate having to pay money and wait a long time every time I need to demonstrate what I have achieved."***

An individual's lifetime of education does not reside entirely within one organization. Not only do people attend a variety of schools, but learning happens outside of formal schooling and continues over a lifetime. Because of this, it is important that educational organizations issue student records in a format that learners can own and combine with future achievements.

Learning Machine works with schools, systems, and Education Ministries to establish immediately useful blockchain credentialing solutions that empower learners with their own official records. Ultimately, these records can be used as a file attachment, or link, when applying for a job or subsequent education.

How does this improve student mobility?

People are becoming increasingly global and mobile. Learners need to be able to take proof of learning with them — proof that remains verifiable even if the educational institutions or governments which issued the credentials cease to function.

What kinds of academic records can be issued to students?

Any kind of academic record can be anchored to the blockchain. We recommend issuing only those records that are important enough to last a lifetime and would need to be verified by others. These might include diplomas, transcripts, or certificates of accomplishment.

Do these records contain course descriptions and equivalency definitions?

Knowing how to determine the value of a credential is an important part of any digital record. Learning Machine works with credentialing initiatives all over the world to ensure that metadata can be written into these records to create better understandings of academic achievement.

Do these digital records complement or replace traditional records?

As educational institutions adopt digital credentialing initiatives, there will be a period of time in which multiple credentialing practices coexist: traditional, paper-based credentials; digital credentials like badges; and blockchain credentials for high-stakes claims. There is no reason that an institution couldn't continue issuing all types of credentials indefinitely as part of its certification ecosystem. However, as with other digitization efforts, over time some institutions will likely prefer to shift entirely to a digital credentialing model. Every organization is unique, so there is no one size fits all prescription.

How can these records "talk" to HR and admissions systems?

First, by creating digital record with metadata in a standard format, IT systems will be able to automatically scan and organize these records. Traditional PDF records aren't readable in the same way. Second, when records are anchored on the blockchain, they can be passively verified by any IT system using a Blockcerts-compliant verification service. If these systems don't have a built-in service, then consumers of the record (like employers) can take the file or URL to a verification portal branded for your school. This verification portal is part of Learning Machine's offering.

Can metadata be added to a digital record?

Yes, metadata can be built into academic records. This is useful for various purposes:

- Enrich understanding of the accomplishment (i.e. description of skills)
- Highlight specific information as machine readable
- Utilize accepted credentialing frameworks
- Add detailed information (i.e. a transcript of grades)

Learning Machine has created a certificate designer that is capable of accepting any metadata schema. Because the system is used across domains and geographies, it is presented as a blank slate that does not privilege any particular definitions or frameworks.

Can we create "stackable certificates"?

Yes. Stacking certificates is a type of metadata: Any certificate may contain links/addresses to other certificates. This embeds the pathway that leads to any type of summative meta-certificate.

Does Learning Machine support competency-based achievements?

Yes. Any type of recognition can be presented as a digital record and issued to a recipient. Competency-based education (CBE) is unique in that achievements are typically modularized and include a more verbose description of skills that have been earned. Learning Machine provides a certificate designer that can be used to match any form factor and an area for metadata that can be used for a description of skills and other helpful information.

How are blockchain certificates the same or different from open badges?

Blockchain credentials are a type of open badge that provides additional security, longevity, interoperability, and recipient ownership for high-stakes claims. A badge is a digital record of achievement, typically verified by a vendor. These badges can be anchored on the blockchain, however, when a greater level of security and recipient independence is required. Learning Machine uses the Blockcerts open standard, which is fully compatible with the Open Badges Initiative (OBI) specification. We also continue to work with IMS Global to ensure ongoing compatibility for all digital records.

What is the role of the registrar?

The registrar will always be an issuer, custodian, and verifier of learner records. We have been working closely with registrars as this project has unfolded, since the registrar is often the primary user of Learning Machine within an educational institution. Learning Machine helps registrars add

an additional layer of security and convenience for students who want to use their official records directly in the world.

Is there evidence that recipient ownership improves economic outcomes?

Ownership forms the foundation for building future value, which for an individual may include further education, a wider variety of employment options, and greater mobility. Other domains, like property ownership, see dramatic results when individuals are empowered with the ability to prove ownership. The domains of education and employment are no different in this regard.

Does this technology meet all of our national and regional security requirements?

Learning Machine provides access to cryptographic techniques that are far more secure than traditional data management standards. Individual privacy and security are our highest values, and making that security convenient to use is our ongoing design challenge. Issuing workspaces can be run as SaaS (hosted in the U.S.) or run within your organization's own private stack anywhere in the world. Amazon's Web Services (AWS) provide a convenient way to host all data within regional boundaries with full security compliance. The issuing workspace can also be installed in your organization's private data center if the appropriate services are in place.

--

Want to learn more? Contact us at info@learningmachine.com

LEARN
ING
MA
CHINE